DEPARTMENT OF AGRICULTURE,
CEYLON.

BULLETIN No. 15.

SOME INSECT PESTS OF 1913.

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SOME INSECT PESTS OF 1913:

Being an Extract from the Annual Report of the Government Entomologist.

Pests of Tea.

XYLEBORUS FORNICATUS, Eich. (Shot-hole Borer of Tea), has received a considerable amount of attention in the course of the year. It has been found that its proclamation under the Plant Pests Ordinance of 1907, from which much was hoped, has been ineffective. The Planters' Association has declared that the proclamation of this pest on individual estates is desirable, and a draft of suggested legislation to prevent the further spread of the insect has been prepared by the Entomologist.

The Committee of Agricultural Experiments and the Planters' Association have shown themselves to be strongly in favour of an Entomologist being temporarily appointed to devote his attention exclusively to a study of this pest with a view to discovering a method of control.

Meanwhile I am convinced that the *burying* of prunings, as a means of control, is almost useless, and I hope at an early date to publish the details of the experiments on which this conclusion is based.

I am of opinion that *burning* of the prunings is the only effective means of control that can at present be recommended.

The burying of prunings has furthermore certain disadvantages owing to the concentration of so much decaying organic matter in proximity to the roots of the plants. One correspondent, complaining of cockchafer injury, informed me that the larvæ were present in all of the holes containing prunings.

Inquiries regarding Shot-hole Borer have been received in the course of the year from Matale, Badulla, Ingiriya, Madulkele, Experiment Station at Peradeniya, Rattota.

An insect was sent in in October from Wattegama in the belief that it was Shot-hole Borer. It was attacking plants

in the nursery, the point of attack being below the ground level. It was identified by Col. Winn. Sampson as *Xyleborus compactus*, Eich. It is much smaller than *X. fornicatus*, and the insects present in each gallery are much more numerous. The same insect also occurs in twigs of coffee in Ceylon. A watch should be kept for it, and the plants and twigs attacked should be destroyed.

There have been numerous inquiries regarding *Zeuzera coffeæ*, Nietn. (Red Borer or Coffee Borer). A short note on this insect appeared in the December number of the "Tropical Agriculturist." It seems to be widespread throughout the tea districts of Ceylon, and is often mistaken for Shot-hole Borer. Whenever found it should be destroyed by cutting out, by prodding with a sharp wire, or by the use of carbon bisulphide. It occurs in many other plants besides tea, and has long been recognized as a persistent pest.

Another borer that has been more prominent than usual, judging from the records in the office, is what is known as the Bark-eating Borer. It feeds on the bark, and lives in a short gallery in the stem. Its feeding ground is always covered with a canopy of frass bound together with silk. This caterpillar does not do much harm directly, but it provides a possible means of access of white ants to the tissues. Doubtless also the gallery forms a centre of decay. This borer should be dealt with as recommended for Red Borer.

The common nettle-grubs have all been reported—*Natada nararia*, Moore (the Fringed Nettle-grub), *Thosea recta*, Hamps. (the "Morawak Korale" Nettle-grub), *Parasa lepida*, Cram. (the Blue-striped Nettle-grub). *Natada nararia* was reported from Badulla and Demodera. In the latter case 80 acres were said to be affected, and all the leaves dropping off the bushes. *Thosea recta* and *Parasa lepida* were reported from Ratnapura. The former at the time of inquiry had consumed some 10 acres of tea. *Heterusia cingala*, Moore (Red Slug), has been reported twice: once, in August, from Badulla, and again, in December, from Galaha.

The practice usually followed in dealing with these leaf-eating caterpillars is to collect them by hand, or to prune the bushes and burn the prunings.

Red Slug may quite well be collected by hand, but not so the nettle-grubs, as they are provided with urticating hairs. When the tea is near pruning time, pruning and burning is to be recommended. But when the tea is still some considerable time from pruning, this method is too drastic, and resort should be had to spraying with arsenate of lead. Were two or three pluckings discarded thereafter, there would be no danger of arsenate of lead getting into the made tea.

Arsenate of lead should be kept in stock ready for use. Numerous occasions arise when it might be used with good effect, as in the case of caterpillars defoliating dadap, croton, albizzia, &c.

Mites have been common, especially *Tarsonymus translucens*, Gr. (Yellow Mite). An article on mites and their control appeared in the December number of the " Tropical Agriculturist."

Information has been sought on several occasions regarding termite injury to tea bushes Nothing can be done except to destroy the nests whenever they are located. The most convenient substance for this purpose is carbon bisulphide. An article giving directions for its use appeared in the "Tropical Agriculturist " for December.

Various experiments have been carried out with alleged white-ant remedies. After a fair trial of Mr. Bandara Beddewela's mixture the conclusion has been reached that no good is done by it over and above that done by the mere digging out of the nest. Dynamite exploded in ant-hills was found to have left the termites unharmed.

Blocks of wood impregnated with " Cordirol " were subjected to the test of exposure to white ants at the request of a Hamburg firm. After three weeks or so all three blocks were found to be badly eaten.

Other insects reported from tea in the course of the year are Bagworm, *Helopeltis antonii*, Sign., *Stauropus alternus*, Wlk. (Lobster Caterpillar), Tortrix, *Lecanium formicarii*, Gr., *Orygia postica*, Wlk., *Taragama dorsalis*, Wlk. In the case of *Taragama dorsalis*, the caterpillars had been feeding on dadap. The Tortrix was said to be confined to acacia-planted fields.

Pests of Rubber.

Specimens of a Cerambycid beetle, *Mœchotypa verrucicollis*, Gahan., were received in August from the Kandy District with the information that they were eating the bark of rubber stumps planted the previous month. In the office we have records of the same kind of damage done by the same insect from Matale and Ukuwela. The last report was received in 1907. It has been determined by experiment that the beetle *will* attack healthy bark with impunity, but that it prefers dry bark. The beetles are large and sluggish, and could be easily collected. Were they present in large numbers the bark might be sprayed with arsenate of lead at a strength of 5 lb. to 100 gallons of water.

No complaint of Root Borer, *Batocera rubra*, L., has been received. A larva, however, that I am not able to separate from that of *Batocera rubra* was sent in as a cockchafer grub. It had been taken in the soil of a tea plantation at Galaha.

On several occasions *Saissetia nigra*, Nietn. (Black Scale), has been sent in. This scale should be regarded as a potential enemy and destroyed whenever found. It occurs on many species of plants. On rubber it is to be found on the leaves and young twigs, and is usually attended by numbers of the large red ant.

A block of Wickham smoke-cured rubber (imperfectly cured) infested on the outside by maggots was submitted for report. The rubber had begun to decompose, and the maggots, which were those of a species of Phorid, were feeding on the products of decomposition. Insects of this group are usually scavengers.

Pests of Cacao.

An attack of Bark-eating Borer at the Experiment Station was investigated, and the use of a wire-probe or carbon bisulphide recommended.

Cyclopelta siccifolia, Westw., was found feeding in two large colonies on a branch of cacao. No eggs or nymphs were present. The favourite food plant of this bug is dadap.

Helopeltis antonii, Sign., was reported from Gampola in September. Spraying the pods with kerosine emulsion, preferably when the bugs are young, is recommended.

Pests of Coconut.

Material was sent in in March from Wennappuwa. The lower epidermis of the leaves was eaten, and only the maturer leaves were said to be attacked. The dead pupa of a Micro-lepidopteron was present in a cocoon of frass lined with white silk. It was probably *Nephantis serinopa*, Meyr. (the Black-headed Coconut Caterpillar).

Rhynchophorus ferrugineus, F. (Red Weevil), was reported as doing much damage in one plantation in Panadure in June. On the advice of the Entomologist a tree at the Experiment Station was treated with carbon bisulphide introduced into auger holes. All the grubs were reported to have been killed.

The caterpillars of a Hesperid were received in August from Tangalla with the report that they were attacking in large numbers coconuts planted in the preceding June. The use of an arsenical, preferably lead arsenate, was recommended.

Pests of Rice.

Only one complaint of injury by insects to rice was received. It was from Matara in April. The insects were the caterpillars of two species of Hesperid (*Parnara bada* and *Parnara mathias*, Fabr.). In the box in which they were sent were several Dipterous puparia, from which Tachinids emerged. These had in all probability been parasitic on the caterpillars.

Against such *gadavellu*, a name given in Ceylon to any insect larva that attacks paddy, arsenate of lead at a strength of 4 lb. to 100 gallons of water should be applied. Paris green seems to be much more easily obtainable in Ceylon than arsenate of lead. As compared with the latter, Paris green has the disadvantage of being liable to " burn " the foliage. If applied as a spray, it should be used at a strength of ¼ lb. to 50 gallons of water, and ¼ lb. of freshly-slaked lime should be added. Arsenate of lead can be obtained from Messrs. Waldie & Co., Konnagar, Calcutta, at Re. 1 per lb.

Pests of Cotton.

Saissetia nigra, Nietn. (Black Scale), was sent in in June with the report that the insect had attacked most of the plants at Hettipola and Balalla Experiment Gardens. This is the

Black Scale of cotton of the West Indies. There at the present time it is kept in check by a Hymenopterous parasite, *Zalophothrix mirum*, Craw. Spraying the plants with kerosine emulsion, preferably at the time when the larvæ of the scale are crawling about prior to settling down, is recommended.

Oxycarenus lætus, Kby., a small Lygæid, was received from Ambalantota in July with the report that the cotton was full of them, and that they did not appear to leave the cotton even when exposed to the sun.

Pests of Citrus.

In October a small beetle, *Apogonia comosa*, Kav., was reported to be attacking the leaves of citrus at Bandaragama. A mite, closely resembling if not identical with *Tetranychus mytilaspidis*, Riley, a serious pest of citrus in California, has been found injurious to the foliage of citrus at Peradeniya.

Miscellaneous Pests, &c., regarding which Information and Advice have been sought.

Noctuid caterpillar, destructive to foliage of lily; various Scolytidæ in stem of tea attacked by root rot; Aphid (probably *Aphis gossypii*, Glov.) infesting cucumber near Peradeniya; *Tachardia lacca*, Kerr (this lac was from Indian Kosun brood-lac put on *Zizyphus jujuba* on an estate near Kandy on February 25, 1913. From material brought in to the laboratory numerous parasites emerged: the moth *Eublemma amabilis*, Mo., several specimens of a species of Braconid, and several species of Chalcids. The Braconids are probably parasites of the Eublemma, and the Chalcids may be primary parasites of the Tachardia, or secondary parasites of the Braconid. From material cut from the tree on July 14 the larvæ of the Tachardia commenced to emerge on August 14. This fact has an important bearing on the shipment of material from one place to another); Lepidopterous larva, probably that of *Phycita leuconeurella*, in fruit of cashew; fruit-fly (*Dacus cucurbitæ*, Coq.) and a Chrysomelid (*Aulacophora* sp.) doing injury to snake-gourd; "gumming" of *Acacia decurrens*; Weevils (*Odoiporus longicollis*, Oliv.) in rhizomes of plantain from Colombo (the plantains were primarily suffering from

disease) ; *Agromyza phaseoli*, Coq., a Dipteron attacking beans at the Experiment Station ; a Drosophilid breeding in jam ; *Terastia meticulosalis*, Guen., the larva of which tunnels in twigs of dadap and red toona ; Dipteron (probably *Agromyza phaseoli*, Coq.) attacking gram at the Experiment Station, Peradeniya ; *Dorylus orientalis*, Westw., an ant attacking Kohl-Rabi at the Experiment Station ; Mango weevil (*Cryptorhynchus magniferæ*, Fabr.) from Jaffna ; Noctuid caterpillar damaging brinjal at Galboda ; Scolytidæ in Ceara at the Experiment Station, following " bark rot " ; Leaf-miner of camphor from Burma ; wax attacked by caterpillar of wax moth ; " Muga Worm " (*Antheræa assama*) ; *Saissetia nigra*, Nietn., and *Pulvinaria* sp. (near *maxima*, Gr.) on *Croton Tiglium* at Kadugannawa ; flea beetle destroying ferns at Lindula ; Aleyrodid on cassava from Seychelles ; Scolytidæ in Hevea from Uganda ; *Hæmatopota* sp. on cattle at Hambantota ; *Chrysops dispar*, F., on cattle at Hambantota ; large weevil (*Sipalus hypocrita*, Boh.) in rubber attacked by canker ; *Stomoxys calcitrans*, Linn., from Talawakele ; maggots (*Musca domestica*, L.) in (fish ?) manure from Talawakele ; *Orgyia postica*, Wlk., whose caterpillars were defoliating dadap ; *Icerya* sp. and *Lepidosaphes gloveri*, Pack., on variegated croton ; African snail (*Achatina fulica*) from Kandy District ; *Taragama dorsalis*, Wlk., defoliating dadap ; *Aularches miliaris*, Fabr. (Spotted Locust), feeding on *Elucine coracana* at the Experiment Station, Peradeniya ; caterpillar (as yet undetermined) of a Lasiocampid* defoliating dadap at Kandy ; Noctuid caterpillar, probably that of *Amyna selenampha*, Guen., defoliating *Croton Tiglium* at Matale ; eggs of a locustid in a twig of cacao ; *Xyleborus* sp. (indistinguishable from *X. compactus*) in twig of custard apple ; Dipterous larvæ in decaying plantain stem from Experiment Station, Peradeniya ; saw-fly defoliating *Dioscorea pentaphylla* at Peradeniya ; Microlepidopteron rolling and eating leaves of cotton ; Microlepidopteron† defoliating lucerne at the Experiment Station, Peradeniya ; Noctuid larva destructive to vegetables at Galle ; *Euproctis scintillans*, Wlk., Noctuid larvæ and

* *Eupterote geminata*, Wlk. (EUPTEROTIDÆ).
† *Dichomeris ianthes*, Meyr. (TINEIDÆ).

Tortrix defoliating *Acacia decurrens* at Rozelle; *Tachardia albizziæ*, Gr., and *Pulvinaria* sp. on *Nephelium Litchi; Popillia discalis*, Walk., a beetle, defoliating roses at Kandapola; *Coccus viridis*, Gr., on coffee at Experiment Station, Peradeniya.

The following insects, &c., among others have not been reported, but have come under the observation of the Entomologist :—Lepidopterous leaf-miner of Citrus ;* ragged holes in tea due to their having been pierced by the falling petioles of dadap (these holes were for a time a puzzle); Lycænid larva† feeding on flowers of tea; various species of Thrips on tea; nymphs of a Membracid feeding on young shoots of tea; Lycænid larva‡ feeding in fronds of Cycas at Peradeniya; *Ceylonica theæcola*, Buck., on tea, cacao, citrus, and *Ixora coccinea;* various ticks on cattle and goats; *Oscinis theæ*, Bigot, Tea Leaf-miner (this insect has been found to be freely parasitized by several species of Chalcids. The same, or a very nearly allied insect, mines in the leaves of *Tylophora asthmatica, Gloriosa superba, Oxystelma esculentum,* and *Bryonia laciniosa;* these plants are frequently to be found growing up through the tea); *Heortia vitessoides*, Moore, defoliating plants of *Lagetta lintearia* at Peradeniya; Chrysomelid beetle defoliating *Murraya Kœnigii* at Peradeniya; *Coccus viridis*, Gr., on *Funtumia elastica;* the larva of a Pyralid (*Cryptoblabes proleucella*, Hmp.) was feeding on the scales; what seems to be the same caterpillar feeds on the Bamboo aphis, *Oregma bambusæ*, Buck.; Noctuid caterpillar (probably *Hypocala deflorata*, Fabr.) defoliating *Diospyros montana* at Peradeniya; *Caprinia conchylalis*, Guen., defoliating *Funtumia elastica; Arctia ricini*, Fabr., defoliating beans; *Pseudococcus* sp. on indigo; *Xyleborus* sp. (which I am unable to separate from *X. fornicatus*) in twigs of Avocado Pear, causing them to fall over and wither; *Coccus viridis*, Gr., and *Ischnaspis longirostris*, Sign., on *Landolphia Kirkii* at Peradeniya; a species of Thrips, near, if not, *Cryptothrips* sp., damaging buds of camphor at Peradeniya Gardens and at Experiment Station, Peradeniya.

A. RUTHERFORD.

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* *Phyllocnistis citrella*, Staint. (TINEIDÆ).
† *Rapala schistacea* (LYCÆNIDÆ).
‡ *Catochrysops pandava*, Horsf. (LYCÆNIDÆ).

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Ample material should be sent to allow of full examination and the installation of specimens in the Museum or Herbarium. Flower and fruit should be sent to enable proper identification to be made.

Full notes should be sent of the locality from which the specimens come, with elevation.

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